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325.01 General

The *Design Manual* provides guidance for three levels of design for highway projects: the basic, modified, and full design levels. The design matrices in this chapter are used to identify the design level(s) for a project and the associated processes for allowing design variances. The matrices address the majority of Preservation and Improvement projects and focus on those design elements that are of greatest concern in project development.

The design matrices are five tables that are identified by route type. Two of the matrices apply to Interstate highways; the other three apply to non-Interstate highways and address Preservation and Improvement projects.

A design matrix is used to determine the design level for the design elements of a project. Apply the appropriate design levels and document the design decisions as required by this chapter and Chapter 330.

325.02 Selecting a Design Matrix

Selection of a design matrix (see Figure 325-1) is based on highway system (Interstate, NHS excluding Interstate, and non-NHS) and location (main line and interchange).

Highway System	Location	
	Main Line	Interchange Area
Interstate	Matrix 1	Matrix 2
NHS*	Matrix 3	Matrix 4
Non-NHS	Matrix 5	Matrix 4

* Except Interstate.

Design Matrix Selection Guide

Figure 325-1

The **Interstate System** (Matrices 1 and 2) is a network of routes selected by the state and the FHWA under terms of the federal-aid acts. These routes are the principal arterials that are the most important to the economic welfare and defense of the United States. They connect, as directly as practicable:

- Principal metropolitan areas and cities.
- Industrial centers.
- International border crossings.

The Interstate System includes important routes into, through, and around urban areas; serves the national defense; and (where possible) connects with routes of continental importance. It also serves international and interstate travel and military movements.

The Interstate System is represented on the list of NHS highways (see Figure 325-2) with the letter “I” before the route number.

The **National Highway System (NHS)** (Matrices 3 and 4) is an interconnected system of principal arterial routes and highways (including toll facilities) that serves the following:

- Major population centers
- International border crossings
- Industrial centers
- Ports
- Airports
- Public transportation facilities
- Other intermodal transportation facilities
- Other major travel destinations

The NHS includes the Interstate System and the Strategic Highway Corridor Network (STRAHNET) and its highway connectors to major military installations (Interstate and non-Interstate).

The NHS meets national defense requirements and serves international, interstate, and interregional travel (see Figure 325-2).

The **Non-NHS** highways (Matrices 4 and 5) are state routes that form a highway network that supplements the NHS system by providing for freight mobility and regional and interregional travel. Non-NHS highways are not shown on Figure 325-2. They are shown on WSDOT’s (free) Official State Highway Map of Washington.

325.03 Using a Design Matrix

The design matrices are shown in Figures 325-3 through 325-7. Follow *Design Manual* guidance for all projects except as noted in the design matrices (and elsewhere as applicable). The definitions presented in this chapter are meant to provide clarification of terminology used in the *Design Manual*. There is no assurance that these terms are used consistently in references outside the *Design Manual*.

(1) Project Type

For project types not listed in the design matrices (such as unstable slopes), consult the Headquarters (HQ) Design Office for guidance.

In the design matrices, row selection is based on Project Type. The Project Summary (see Chapter 330) defines and describes the project. For NHS and non-NHS routes (Matrices 3, 4, and 5), the project’s program/subprogram might provide sufficient information to identify the Project Type. (See the *Programming Manual* for details about funding programs and subprograms.)

The various sources of funds for these subprograms carry eligibility requirements that the designers and project development must identify and monitor throughout project development. This is especially important to ensure accuracy when writing agreements and to avoid delaying advertisement for bids if the Project Type changes.

Some projects involve work from several subprograms. In such cases, identify the various limits of the project that apply to each subprogram. Where the project limits overlap, apply the higher design level to the overlapping portion.

Project Types (in alphabetical order) are:

At Grade. Safety improvement projects on NHS highways (45 mph or greater) to build grade-separation facilities that replace the existing intersections.

Bike Routes (Shldrs). Main line economic development improvement projects to provide a statewide network of rural bicycle touring routes with shoulders a minimum of 4 feet wide.

Bike/Ped. Connectivity. Mobility improvement projects to provide bicycle/pedestrian connections, along or across state highways within urban growth areas, to complete local networks.

Bridge Deck Rehab. Structures preservation projects that repair delaminated bridge decks and add protective overlays to provide a sound, smooth surface, prevent further corrosion of the reinforcing steel, and preserve operational and structural integrity.

Bridge Rail Upgrades. Safety improvement projects to update older bridge rails to improve strength and redirection capabilities.

Bridge Repl. (Multilane). Non-NHS main line structures preservation projects that replace bridges on multilane highways to improve operational and structural capacity.

Bridge Replacement. NHS and two-lane non-NHS (main line and interchange) structures preservation projects that replace bridges to improve operational and structural capacity.

Bridge Restrictions. Main line economic development improvement projects that remove vertical or load capacity restrictions to benefit the movement of commerce.

BST. Non-NHS roadway preservation projects to do bituminous surface treatment (BST) work only, to protect the public investment.

BST Routes/Basic Safety. Non-NHS roadway preservation projects that resurface highways at regular intervals and restore existing safety features, to protect the public investment.

Corridor. Main line improvement projects to reduce and prevent vehicular, nonmotorized, and pedestrian collisions (within available resources).

Diamond Grinding. Grinding a concrete pavement, using gang-mounted diamond saw blades, to remove surface wear or joint faulting.

Dowel Bar Retrofit. Reestablishing the load transfer efficiencies of the existing concrete joints and transverse cracks by cutting slots, placing epoxy-coated dowel bars, and placing high-early strength, nonshrink concrete.

Four-Lane Trunk System. NHS economic development improvement projects to complete contiguous four-lane limited access facilities on a trunk system consisting of all Freight and Goods Transportation Routes (FGTS) with a classification of 10,000,000 tons/year.

Freight & Goods (Frost Free). Main line economic development improvement projects to reduce delay from weather-related closures on high-priority freight and goods highways.

Guardrail Upgrades. Safety improvement projects limited to the specified roadside design elements. These projects focus on W beam with 12-foot-6-inch spacing and on guardrail systems with concrete posts. The length of need is examined and minor adjustments are made. Removal is an option if guardrail is no longer needed. For Interstate main line, address length of need as specified in Chapter 710. For non-interstate routes, additional length of more than 5% of the existing length is beyond the intent of this program. In these instances, consider funding in accordance with priority programming instructions and, if the length of need is not met, document to the Design Documentation Package (DDP) that the length of need is not addressed because it is beyond the intent of this program.

HMA/PCCP. Non-NHS roadway preservation projects to resurface highways at regular intervals and restore existing safety features to protect the public investment.

HMA/PCCP/BST Overlays. NHS main line roadway preservation projects that resurface the existing surfaces at regular intervals to protect the public investment.

HMA/PCCP/BST Overlays Ramps. NHS and non-NHS ramp roadway preservation projects that resurface the existing surfaces at regular intervals and restore existing safety features to protect the public investment.

HMA Structural Overlays. Hot mix asphalt overlays that are placed to increase the load-carrying ability of the pavement structure. Structural overlay thickness is greater than 0.15 foot.

HOV Bypass. NHS and non-NHS ramp mobility improvement projects to improve mobility within congested highway corridors by providing HOV bypass lanes on freeway ramps. Congested highway corridors have high congestion index values as described in the *Highway System Plan* (footnote in text for Improvement/Mobility).

HOV. Main line mobility improvement projects completing the freeway Core HOV lane system in the Puget Sound region and providing level of service C on HOV lanes (including business access transit lanes) within congested highway corridors.

Intersection. Safety improvement projects to reduce and prevent collisions, to increase the safety of highways, and to improve pedestrian safety (within available resources).

Median Barrier. Limited safety improvement projects; mainly new median barrier, with a focus on cable barrier, to reduce median crossover accidents.

Milling with HMA Inlays. Removing a specified thickness of the existing HMA pavement, typically from the traveled lanes, and then overlaying with HMA at the same specified thickness.

New/Reconstruction projects include the following types of work:

- Capacity changes: add a through lane, convert a general purpose (GP) lane to a special purpose lane (such as an HOV lane), or convert a high occupancy vehicle (HOV) lane to GP
- Other lane changes: add or eliminate a collector-distributor or auxiliary lane (a rural truck-climbing lane that, for its entire length, meets the warrants in Chapter 1010 is not considered new/reconstruction)

- Pavement reconstruction: full depth PCCP or HMA replacement
- New interchange
- Changes in interchange type such as diamond to directional or adding a ramp
- New or replacement bridge (on or over, main line or interchange ramp)

Non-Interstate Freeway (mobility). On non-NHS and NHS interchanges and on NHS main line, these are mobility improvement projects on multilane divided highways with limited access control, within congested highway corridors.

Non-Interstate Freeway (roadway preservation). Roadway preservation projects on non-NHS and NHS interchanges and on NHS main line, to overlay or inlay with HMA/PCCP/BST on multilane divided highways with limited access control to minimize long-term costs and restore existing safety features.

Non-Interstate Freeway (safety). NHS and non-NHS (main line and interchanges) safety improvement projects on multilane divided highways with limited access control to increase the safety within available resources.

Nonstructural Overlay. An HMA pavement overlay that is placed to minimize the aging effects and minor surface irregularities of the existing HMA pavement structure. The existing HMA pavement structure is not showing extensive signs of fatigue (longitudinal or alligator cracking in the wheel paths). Nonstructural overlays are less than or equal to 0.15-foot thick and frequently less than 0.12-foot thick.

PCCP Overlays. Portland cement concrete pavement overlays of existing PCCP or HMA surfaces.

Preventive Maintenance. Includes roadway work such as pavement patching; restoration of drainage system; panel replacement; joint and shoulder repair; and bridge work such as crack sealing, joint repair, slope stabilization, seismic retrofit, scour countermeasures, and painting. Preventive maintenance projects must not degrade any existing safety or geometric aspects of the facility. Any elements that will be reconstructed as part of a preventive maintenance project are to be addressed in accordance with full design level.

Replace HMA w/ PCCP at I/S (intersections). NHS and non-NHS main line roadway preservation projects that restore existing safety features and replace existing HMA intersection pavement that has reached the point of lowest life cycle cost (11–15 years old) with PCCP that has about a 40-year life cycle.

Rest Areas (New). NHS and non-NHS main line economic development and safety improvement projects to provide rest areas every 60 miles and some RV dump stations.

Risk: Realignment. Improvement projects intended to improve alignment at specific locations where the Risk program has identified a high probability of collisions/accidents.

Risk: Roadside. Improvement projects intended to mitigate roadside conditions at specific locations where the Risk program has identified a high probability of vehicular encroachment.

Risk: Roadway Width. Improvement projects intended to adjust the roadway width at specific locations where the Risk program has identified a high probability of a vehicle leaving its lane of travel.

Risk: Sight Distance. Improvement projects intended to improve sight distance at specific locations where the Risk program has identified a high probability of collisions/accidents.

Rural. Mobility improvement projects providing uncongested level of service on rural highways within congested highway corridors. (See HOV Bypass for cross reference regarding “congested.”)

Urban. NHS and two-lane non-NHS (main line and interchange) mobility improvement projects within congested urban highway corridors. (See HOV Bypass for cross reference regarding “congested.”)

Urban (Multilane). Non-NHS mobility improvement projects within congested urban multilane highway corridors. (See HOV Bypass for cross reference regarding “congested.”)

(2) Design Elements

The column headings on a design matrix are **Design Elements**. Not all potential design elements have been included in the matrices.

The design elements that are included are based on the following thirteen FHWA controlling design criteria: design speed, lane width, shoulder width, bridge width, structural capacity, horizontal alignment, vertical alignment, grade, stopping sight distance, cross slope, superelevation, vertical clearance, and horizontal clearance. For the column headings, some of these controlling criteria have been combined (for example, design speed is part of horizontal and vertical alignment).

If using a design element that is not on the assigned matrix, use full design level as found elsewhere in this manual.

If using a design element that is not covered in this manual, use an approved manual or guidance on the subject and document the decision and the basis for the decision.

The following elements are shown on the design matrices. If the full design level applies, see the chapters listed below. If basic design level applies, see Chapter 410. If the modified design level applies, see Chapter 430.

Horizontal Alignment. The horizontal attributes of the roadway, including horizontal curvature, superelevation, and stopping sight distance; all based on design speed. (See Chapter 620 for horizontal alignment, Chapter 642 for superelevation, Chapter 650 for stopping sight distance, and Chapters 440 or 940 for design speed.)

Vertical Alignment. The vertical attributes of the roadway including vertical curvature, profile grades, and stopping sight distance; all based on design speed. (See Chapter 630 for vertical alignment, Chapters 430, 440, 630, and 940 for grades, Chapters 430 and 650 for stopping sight distance, and Chapters 430, 440, or 940 for design speed.)

Lane Width. Defined in Chapter 440 (also see Chapters 430, 640, 641, and 940).

Shoulder Width. Defined in Chapter 440 (also see Chapters 430, 640, and 940). For shy distance requirements when barrier is present, see Chapter 710.

Lane Transitions (pavement transitions). The rate and length of transition of changes in width of lanes (see Chapter 620).

On/Off Connection. The widened portion of pavement at the end of a ramp connecting to a main lane of a freeway (see Chapter 940).

Median Width. The distance between inside edge lines (see Chapters 440 and 640).

Cross Slope: Lane. The rate of elevation change across a lane. This element includes the algebraic difference in cross slope between adjacent lanes (see Chapters 430 and 640).

Cross Slope: Shoulder. The rate of elevation change across a shoulder (see Chapters 430 and 640).

Fill/Ditch Slopes. The downward slope from edge of shoulder to bottom of ditch or catch (see Chapters 430 and 640).

Access. The means of entering or leaving a public road, street, or highway with respect to abutting private property or another public road, street, or highway (see Chapter 1420).

Clear Zone. The total roadside border area, starting at the edge of the traveled way, available for use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run-out area. The median is part of a clear zone (see Chapter 700).

Signing, Delineation, Illumination. Signs, guideposts, pavement markings, and lighting. (See Chapter 820 for signing and 1120 for bridge signs, Chapter 830 for delineation, and Chapter 840 for illumination.)

Vertical Clearance. Defined in Chapter 1120.

Basic Safety. The list of safety items is in Chapter 410.

Bicycle and Pedestrian. Defined in Chapter 1020, Bicycle Facilities, and Chapter 1025, Pedestrian Design Considerations.

Bridges: Lane Width. The width of a lane on a structure (see Chapters 430, 440, 640, 641, 940, and 1120).

Bridges: Shoulder Width. The distance between the edge of traveled way and the face of curb or barrier, whichever is less (see Chapters 430, 440, 640, 940, and 1120; also see Chapter 710 for shy distance requirements).

Bridges/Roadway: Vertical Clearance. The minimum height between the roadway, including shoulder, and an overhead obstruction (see Chapter 1120).

Bridges: Structural Capacity. The load-bearing ability of a structure (see Chapter 1120).

Intersections/Ramp Terminals: Turn Radii. Defined in Chapter 910.

Intersections/Ramp Terminals: Angle. Defined in Chapter 910.

Intersections/Ramp Terminals: Intersection Sight Distance. Definitions are in Chapters 910 and 940.

Barriers: Terminals and Transition Sections. Terminals: Crashworthy end treatments for longitudinal barriers that are designed to reduce the potential for spearing, vaulting, rolling, or excessive deceleration of impacting vehicles from either direction of travel. Impact attenuators are considered terminals. Beam guardrail terminals include anchorage. Transition Sections: Sections of barriers used to produce a gradual stiffening of a flexible or semirigid barrier as it connects to a more rigid barrier or fixed object (see Chapters 700, 710, and 720).

Barriers: Standard Run. Guardrail and other barriers as found in the *Standard Plans for Road Bridge and Municipal Construction* excluding terminals, transitions, attenuators, and bridge rails (see Chapter 710).

Barriers: Bridge Rail. Barrier on a bridge, excluding transitions (see Chapter 710).

(3) *Design Level*

In the non-Interstate matrices, design levels are noted in the cells by B, M, F, and sometimes with a number corresponding to a footnote on the matrix. For Improvement projects, full design level applies to all design elements, except as noted in the design matrices and in other chapters as applicable. In the Interstate matrices, only full design level applies.

The design levels of basic, modified, and full (B, M, and F) were used to develop the design matrices. Each design level is based on the investment intended for the highway system and Project Type. (For example, the investment is higher for an Interstate overlay than for an overlay on a non-NHS route.)

A **blank cell** in a design matrix row signifies that the design element will not be addressed because it is beyond the scope of the typical project. In rare instances, a design element with a blank cell may be included if that element is linked to the original need that generated the project and is identified in the Project Summary or a Project Change Request Form.

Basic design level (B) preserves pavement structures, extends pavement service life, and maintains safe operations of the highway. (See Chapter 410 for design guidance.)

Modified design level (M) preserves and improves existing roadway geometrics, safety, and operational elements. (See Chapter 430 for design guidance.) Use full design level for design elements or portions of design elements that are not covered in Chapter 430.

Full design level (F) improves roadway geometrics, safety, and operational elements. (See Chapter 440 and other applicable *Design Manual* chapters for design guidance.)

(4) *Design Variances*

Types of design variances are design exceptions, evaluate upgrades, and deviations. (See Chapter 330 concerning the Design Variance Inventory System (DVIS).)

A **design exception (DE)** in a matrix cell indicates that WSDOT has determined that the design element is usually outside the scope of the Project Type. Therefore, an existing condition that does not meet or exceed the design level specified in the matrix may remain in place unless a need has been identified in the *Highway System Plan* and prioritized in accordance with the programming process. (See Chapter 330 regarding documentation.)

An **evaluate upgrade (EU)** in a matrix cell indicates that WSDOT has determined that the design element is an item of work that is to be considered for inclusion in the project. For an existing element that does not meet or exceed the specified design level, an analysis is required to determine the impacts and cost-effectiveness of including the element in the project. The EU analysis must support the decision regarding whether or not to upgrade that element. (See Chapter 330 regarding documentation.)

A **deviation** is required when an existing or proposed design element differs from the specified design level for the project and neither DE nor EU processing is indicated. (See Chapter 330 regarding documentation.)

DE or EU with /F or /M in a cell means that the design element is to be analyzed with respect to the specified design level. For instance, a DE/F is analyzed with respect to full design level and might be recorded as having an existing design element that does not meet or exceed current full design level. An EU/M is analyzed to decide whether or not to upgrade any existing design element that does not meet or exceed the current modified design level.

(5) Terminology in Notes

F/M Full for freeways/Modified for nonfreeway uses the word **freeway** to mean a divided highway facility that has a minimum of two lanes in each direction, for the exclusive use of traffic and with full control of access. For matrix cells with an F/M designation, analyze freeway routes at full design level and nonfreeway routes at modified design level.

The **HAL, HAC, and PAL** mentioned in note (1) in Design Matrices 3, 4, and 5 are high accident locations (HAL), high accident corridors (HAC), and pedestrian accident locations (PAL).

The **Access Control Tracking System** mentioned in note (3) in Design Matrices 3, 4, and 5 is a database list related to highway route numbers and mileposts, available under the RELATED SITES heading at: www.wsdot.wa.gov/eesc/design/access/. (See Chapter 1420 for access control basics and 1430 and 1435 for limited and managed access, respectively.)

The **corridor or project analysis** mentioned in notes (2) and (4) on Design Matrices 3, 4, and 5 is the justification needed to support a change in design level from the indicated design level. The first step is to check for recommendations for future improvements in an approved *Route Development Plan*. If none are available, an analysis can be based on route continuity and other existing features. (See Chapter 330 regarding documentation.)

Note **(21) Analyses required** appears only on Design Elements for Risk projects on Design Matrices 3, 4, and 5. These design elements are to be evaluated using benefit/cost (B/C) to compare and rank each occurrence of the design element. The B/C evaluation supports engineering decisions regarding which proposed solutions are included in a Risk project.

Most components of a Risk project will have a B/C of 1.0 or greater. Proposed solutions with a B/C ratio less than 1.0 may be included in the project based on engineering judgment of their significant contribution to corridor continuity. Risk program size, purpose and need, or project prioritization may lead to instances where design elements with a ratio greater than 1.0 are excluded from a project. The analysis, design decisions, and program funding decisions are to be documented in the Design Documentation Package. Decisions regarding which design elements to include in a project are authorized at the WSDOT Region level.

State Route	NHS Route Description	Begin SR MP	Begin ARM	End SR MP	End ARM
US 2	I-5 to Idaho State Line	0.00B	0.00	334.51	326.64
US 2 Couplet	Brown Street Couplet	287.45	0.00	288.08	0.63
US 2 Couplet	Division Street Couplet	289.19	0.00	290.72	1.53
SR 3	US 101 to SR 104	0.00	0.00	60.02	59.81
SR 4	US 101 to I-5	0.00	0.00	62.28	62.27
I-5	Oregon State Line to Canadian Border	0.00	0.00	276.56	276.62
SR 8	US 12 to US 101	0.00	0.00	20.67	20.67
SR 9	SR 546 to Canadian Border	93.61	93.52	98.17	98.08
SR 9 Spur	Sumas Spur	98.00	0.00	98.25	0.24
SR 11	I-5 to Alaskan Ferry Terminal	19.93	19.93	21.28	21.28
US 12	US 101 to Idaho State Line	0.00	0.00	434.19	430.76
US 12 Couplet	Aberdeen Couplet	0.33	0.00	0.68	0.35
SR 14	I-5 to US 97	0.00	0.00	101.02	100.93
SR 14 Spur	Maryhill Spur	100.66	0.00	101.05	0.39
SR 16	I-5 to SR 3	0.00	0.00	29.19	27.01
SR 16 Spur	SR 16 to SR 3	28.74	0.00	29.13	0.39
SR 17	US 395 to I-90	7.43	0.00	50.89	43.40
SR 18	SR 99 to I-5	2.20B	0.00	0.00	0.53
SR 18	I-5 to I-90	0.00	0.53	27.91	28.41
SR 20	US 101 to I-5	0.00	0.00	59.54	59.49
SR 20 Spur	SR 20 to San Juan Ferry	47.89	0.00	55.67	7.78
SR 22	US 97 to I-82	0.70	0.00	4.00	3.31
SR 26	I-90 to US 195	0.00	0.00	133.53	133.61
SR 26 Spur	SR 26 to US 195	133.44	0.00	133.51	0.07
SR 28	US 2 to SR 281	0.00B	0.00	29.77	33.91
I-82	I-90 to Oregon State Line	0.00	0.00	132.60	132.57
I-90	I-5 to Idaho State Line	1.94	0.00	299.82	297.52
I-90 Reverse Lane	Reversible lane	1.99	0.00	9.44	7.45
SR 96	I-5 to McCollum Park and Ride	0.00	0.00	0.52	0.52
US 97	Oregon State Line to SR 22	0.00B	0.00	61.44	61.30
US 97	I-90 to Canadian Border	133.90	118.80	336.48	321.62
US 97 Couplet	Maryhill Couplet	2.59	0.00	2.68	0.09
US 97 Spur	US 97 to US 2 (Orondo)	213.36	0.00	213.62	0.26
SR 99	188th to SeaTac Airport	18.35	14.70	18.77	15.12
SR 99	SR 509 to SR 104	26.04	22.40	43.60	39.84
US 101	Oregon State Line to SR 401	0.00	0.00	0.46	0.46
US 101	SR 4 to I-5	28.89	28.89	367.41	365.78
US 101 Couplet	Aberdeen Couplet	87.49	0.00	91.66	4.17
US 101 Couplet	Port Angeles Couplet	249.65	0.00	251.32	1.67
SR 104	US 101 to I-5	0.20	0.00	29.67	29.14
SR 109	Pacific Beach Access	0.00	0.00	30.25	30.29
SR 125	Oregon State Line to SR 125 Spur	0.00	0.00	6.09	6.08
SR 125 Spur	SR 125 to US 12	6.09	0.00	6.76	0.67
SR 127	US 12 to SR 26	0.03	0.00	27.05	27.05
SR 128	US 12 to Idaho State Line	0.00	0.00	2.30	2.30

NHS Highways in Washington
Figure 325-2

State Route	NHS Route Description	Begin SR MP	Begin ARM	End SR MP	End ARM
SR 166	SR 16 to Bay St	0.02	0.00	3.40	3.38
SR 167	I-5 to SR 900 / S 2nd St	0.00	0.00	27.28	28.60
I-182	I-82 to US 395	0.00	0.00	15.19	15.19
US 195	Idaho State Line to I-90	0.00B	0.00	95.99	93.37
US 195 Spur	US 195 to Idaho State Line	0.06	0.00	0.60	0.54
I-205	Oregon State Line to I-5	26.59	0.00	37.16	10.57
SR 240	I-182 to Coast St / Bypass Hwy – Hanford Access	30.63	28.86	34.87	33.10
SR 270	US 195 to Idaho State Line	0.00	0.00	9.89	9.89
SR 270	Pullman Couplet	2.67	0.00	2.90	0.23
SR 281	I-90 to SR 28	0.00	0.00	10.55	10.55
SR 281 Spur	SR 281 to I-90	2.65	0.00	4.34	1.69
SR 303	SR 304 to SR 3	0.00B	0.00	9.16	9.32
SR 304	SR 3 to Bremerton Ferry	0.00	0.00	3.51	3.24
SR 305	Winslow Ferry to SR 3	0.02	0.00	13.52	13.50
SR 307	SR 305 to SR 104	0.00	0.00	5.25	5.25
SR 310	SR 3 to SR 304	0.00	0.00	1.84	1.84
US 395	Congressional High-Priority Route/I-82 to Canadian Border	13.05	19.81	270.26	275.09
SR 401	US 101 to SR 4	0.00	0.00	12.13	12.13
I-405	I-5 to I-5	0.00	0.00	30.32	30.30
SR 432	SR 4 to I-5	0.00	0.00	10.33	10.32
SR 433	Oregon State Line to SR 432	0.00	0.00	0.94	0.94
SR 500	I-5 to SR 503	0.00	0.00	5.96	5.96
SR 501	I-5 to Port of Vancouver	0.00	0.00	3.83	3.42
SR 502	I-5 to SR 503	0.00B	0.00	7.56	7.58
SR 503	SR 500 to SR 502	0.00	0.00	8.09	8.09
SR 509	12th Place S to SR 99	24.35B	26.13	29.83	33.11
SR 509	Pacific Ave. to Marine View Drive	0.22	1.44	3.20	4.42
SR 512	I-5 to SR 167	0.00	0.00	12.06	12.06
SR 513	Sandpoint Naval Air Station	0.00	0.00	3.35	3.35
SR 516	I-5 to SR 167	2.03	2.02	4.72	4.99
SR 518	I-5 to SR 509	0.00	0.00	3.81	3.42
SR 519	I-90 to Seattle Ferry Terminal	0.00	0.00	1.14	1.14
SR 520	I-5 to SR 202	0.00	0.00	12.83	12.82
SR 522	I-5 to US 2	0.00	0.00	24.68	24.68
SR 524	Cedar Way Spur to I-5	4.64	4.76	5.32	5.44
SR 524 Spur	Cedar Way Spur – Lynnwood Park and Ride to SR 524	4.64	0.00	5.14	0.50
SR 525	I-5 to SR 20	0.00	0.00	30.49	30.72
SR 526	SR 525 to I-5	0.00	0.00	4.52	4.52
SR 529	I-5 to Everett Homeport	0.00	0.00	2.72	2.72
SR 539	I-5 to Canadian Border	0.00	0.00	15.16	15.16
SR 543	I-5 to Canadian Border	0.00	0.00	1.09	1.09
SR 546	SR 539 to SR 9	0.00	0.00	8.02	8.02
I-705	I-5 to Schuster Parkway	0.00	0.00	1.50	1.50
SR 970	I-90 to US 97	0.00	0.00	10.31	10.31

NHS Highways in Washington

Figure 325-2 (continued)

↓ Project Type																Bridges			Barriers			
Design Elements ⇄	Horiz. Align.	Vert. Align.	Lane Width	Shldr Width (13)	On/Off Conn.	Median Width	Cross Slope Lane	Cross Slope Shldr	Fill/Ditch Slopes	Clear Zone	Sign. (10)	Delini. (9)	Illumin.	Vert. Clear. (11)	Bike & Ped.	Lane Width	Shldr Width	Structural Capacity	Term. & Trans. Section (12)	Std Run	Bridge Rail (14)(19)	
(1-1) Preventive Maintenance																						
Pavement Restoration																						
(1-2) Diamond Grinding											EU	EU	F		DE					F	EU	F
(1-3) Milling with HMA Inlays										F	EU	F		DE						F	EU	F
(1-4) Nonstructural Overlay				DE			EU	EU	EU	F	EU	F		F						F	F	F
Pavement Rehab./Resurf.																						
(1-5) HMA Structural Overlays	EU	DE	F	F	F(17)	DE	F	EU	F	F	EU	F	F	F						F	F	F
(1-6) PCCP Overlays	EU	DE	F	F	F(17)	DE	F	EU	F	F	EU	F	F	F						F	F	F
(1-7) Dowel Bar Retrofit	EU	DE	F	F	F(17)	DE	DE		F	F	EU	F	F	DE						F	F	F
Bridge Rehabilitation																						
(1-8) Bridge Deck Rehabilitation												F		F		F	DE	(11)		F(6)	F(22)	F
Safety																						
(1-9) Median Barrier				DE																F(20)	F(20)	
(1-10) Guardrail Upgrades				DE						F										F	F(23)	
(1-11) Bridge Rail Upgrades																				F	F(22)	F
Reconstruction (16)																						
(1-12) New/Reconstruction	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		F	F	F

Not Applicable

F Full design level. See Chapter 440.

DE Design Exception to full design level.

EU Evaluate Upgrade to full design level.

(6) Applies only to bridge end terminals and transition sections.

(9) Continuous shoulder rumble strips required in rural areas. See Chapter 700.

(10) See Chapter 820.

(11) See Chapter 1120.

(12) Impact attenuators are considered as terminals.

(13) See Chapters 440 and 640.

(14) Includes crossroad bridge rail. See Chapter 710.

(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).

(17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.

(19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.

(20) Applies to median elements only.

(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.

(23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.

Design Matrix 1:
Interstate Routes (Main Line)
Figure 325-3

Project Type	Ramps and Collector Distributors														Cross Road									
	Ramp Terminals														Barriers			Barriers						
	Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Transi-tion	On/Off Conn.	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Limited Access	Clear Zone	Sign., Del., Illumin.	Vertical Clear.	Bike & Ped.	Turn Radii	I/S Sight Angle	Term. & Trans. Section Dist.	Term. & Trans. Section Run	Std Run	Bridge Rail Run	Bridge Rail (14/19)	Term. & Trans. Section Run (12)	Std Run (14/19)	
Design Elements ⇨																								
(2-1) Preventive Maintenance																								
Pavement Restoration																								
(2-2) Diamond Grinding																								
(2-3) Milling with HMA Inlays																								
(2-4) Nonstructural Overlay																								
Pavement Rehab./Resurf.																								
(2-5) HMA Structural Overlays	EU	DE	F	F	F	F(17)	F	EU	F	F	F	F(15)	F	M	F	F	F	F	F	F	F	F	F	F
(2-6) PCCP Overlays	EU	DE	F	F	F	F(17)	F	EU	F	F	F	F(15)	F	M	F	F	F	F	F	F	F	F	F	F
(2-7) Dowel Bar Retrofit	DE		DE	DE	F	F(17)	DE		F	F	F	F(15)	DE		F	F	F	F	F	F	F	F	F	F
Bridge Rehabilitation																								
(2-8) Bridge Deck Rehabilitation																								
Safety																								
(2-9) Intersection																								
(2-10) Guardrail Upgrades			F	F	F				F	F	F	F		M	F	F	F	F	F	F	F	F	F	F
(2-11) Bridge Rail Upgrades																								
Reconstruction (16)																								
(2-12) New/Reconstruction	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

□ Not Applicable

F Full design level. See Chapter 440.

M Modified design level. See Chapter 430.

DE Design Exception to full design level.

EU Evaluate Upgrade to full design level.

(6) Applies only to bridge end terminals and transition sections.

(9) Continuous shoulder rumble strips required in rural areas. See Chapter 700.

(10) See Chapter 820.

(11) See Chapter 1120.

(12) Impact attenuators are considered as terminals.

(14) Includes crossroad bridge rail. See Chapter 710.

(15) EU for signing and illumination.

(16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).

(17) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.

(19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.

(22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.

(23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.

Design Matrix 2:
Interstate Interchange Areas
Figure 325-4

↕ Project Type		Bridges (11)											Intersections			Barriers								
Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Transition	On/Off Conn.	Median Width	Cross Slope Lane	Cross Slope Shldr	Fill/Ditch Slopes	Access (3)	Clear Zone (18)	Sign., Del., Illumin.	Basic Safety	Bike & Ped.	Lane Width	Shldr Width	Vertical Clearance	Structural Capacity	Turn Radii	Angle	I/S Sight Dist.	Term. & Trans. Section (12)	Std Run	Bridge Rail (14/19)
Design Elements ⇨																								
Preservation																								
Roadway																								
	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F		B	B		DE/F	DE/F	F							
	DEM	DEM	DEM	DE/F	DE/F	DEM	DEM	DEM	DEM			B	B	M	DEM	DEM	F				B	F	B	F
	DEM	DEM	EUM	DE/F		DEM	EUM	DEM	DEM			B	B	M	DEM	DEM	F				B	F	B	F
Structures																								
F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)		F	F	F	F	F(2)	F(2)	F	F	F(2)	F	F	F	F	F
												B	B	M			F				F(6)	F(22)	F	
Improvements (16)																								
Mobility																								
F	F	F	F	F	F	F	F	F	F	F	F	F												
F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F		F	F	F	F	F	F	F	F	F	F	F
F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F(2)	F(2)	F	F	F(2)	F	F	F	F	F
F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F(2)	F(2)	F	F	F(2)	F	F	F	F	F
(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)		F	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Safety																								
F	F	F	F	F	F	F	F	F	F	F	F	F		F	F	F	F							
	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F	F		M					F	F	F	F	F	F
M(4)	M(4)	M(4)	M(4)	F	F(17)	M(4)	M(4)	M(4)	M(4)	F	F	F		F	M(4)		F		M(4)	M(4)		F	F	F
		DE/F																						
		DE/F																						

- (1) Not Applicable
- (2) Full design level. See Chapter 440.
- (3) Modified design level. See Chapter 430.
- (4) Basic design level. See Chapter 410.
- (5) Full for freeways/Modified for nonfreeway
- (6) Design Exception
- (7) Evaluate Upgrade
- (8) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (At-Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
- (9) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
- (10) If designated as L/A acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
- (11) Full design level may apply based on a corridor or project analysis. See 325.03(5).
- (12) For bike/pedestrian design see Chapters 1020 and 1025.
- (13) Applies only to bridge end terminals and transition sections.
- (14) 4 ft minimum shoulders.
- (15) If all weather structure can be achieved with spot ditches and overlay, modified design level applies to NHS highways and basic design level applies to non-NHS highways.
- (16) See Chapter 1120.
- (17) Impact attenuators are considered as terminals.
- (18) Includes crossroad bridge rail. See Chapter 710.
- (19) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
- (20) DE for existing acceleration/deceleration lanes when length meets posted freeway speed and no significant accidents. See Chapter 940.
- (21) On managed access highways within the limits of incorporated cities and towns, City and County Design Standards apply to areas outside the curb or outside the paved shoulder where no curb exists.
- (22) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
- (23) Applies to median elements only.
- (24) Analyses required. See 325.03(5) for details.
- (25) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
- (26) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
- (27) Apply Full design level to projects that realign or reconstruct significant portions of the alignment.
- (28) Sidewalk ramps must be addressed for ADA compliance. See Chapter 1025.

Design Matrix 3: Main Line NHS Routes (Except Interstate) Figure 325-5

↕ Project Type		Ramps and Collector Distributors																	Cross Road																
		Ramp Terminals							Barriers			Barriers																							
Design Elements ➡		Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Trans- ition	On/Off Conn.	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Access (3)	Clear Zone	Sign., Del. Illumin.	Basic Safety	Bike & Ped.	Turn Radii	Angle	I/S Sight Dist.	Term. & Trans. Section (12)	Bridge Rail Run (14/19)	Barriers														
																				Term. & Trans. Section (12)	Bridge Rail Run (14/19)	Term. & Trans. Section (12)	Ped. Bke	Sign., Del. Illumin.	Basic Safety	Vert. Clear. (11)									
Preservation																																			
Roadway																																			
(4-1) Non-Interstate Freeway		DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	DE/F	B	B	M	DE/F	DE/F	DE/F	B	F	B	F													
(4-2) HMA/PCPBST Overlays Ramps													B	B	M					F	B	F													
Structures																																			
(4-3) Bridge Replacement		F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F	F	F	F	F	F													
(4-4) Bridge Deck Rehab.													B	B	M					F(6)	F(22)	F													
Improvements (16)																																			
Mobility																																			
(4-5) Non-Interstate Freeway		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F													
(4-6) Urban		F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F(2)	F	F	F	F													
(4-7) Rural		F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F(2)	F	F	F	F													
(4-8) HOV By Pass		F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F(2)	F	F	F	F													
(4-9) Bike/Ped. Connectivity		(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	F	(5)	(5)	(5)	(5)	(5)	(5)	(5)													
Safety																																			
(4-10) Non-Interstate Freeway		F	F	F	F	F	F	F	F	F	F	F	F	F	M	F	F	F	F	F	F	F													
(4-11) At Grade (1)(25)		F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F	F	F	F	F													
(4-12) Intersection (1)															M	F	F	F	F	F	F	F													
(4-13) Guardrail Upgrades						F									M	F	F	F	F	F	F	F													
(4-14) Bridge Rail Upgrades						DE/F														F	F(23)	F													
(4-15) Risk: Roadside																																			
(4-16) Risk: Sight Distance		F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F	F	F	F(2)(1)	F(2)(1)	F	F	F	F	F													
(4-17) Risk: Roadway Width		F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F	F(2)(1)	F(2)(1)	F(2)(1)	F(2)(1)	F	F	F	F	F	F	F(2)(1)	F(2)(1)	F	F	F	F													
(4-18) Risk: Realignment		F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)(1)	F(2)(1)	F	F	F	F													
Economic Development																																			
(4-19) Four-Lane Trunk System		F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F													

- (1) Collision Reduction (HAL, HAC, PAL) or Collision Prevention (At-Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
- (2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
- (3) If designated as L/A acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
- (4) Full design level may apply based on a corridor or project analysis. See 325.03(5).
- (5) For bike/pedestrian design see Chapters 1020 and 1025.
- (6) Applies only to bridge end terminals and transition sections.
- (11) See Chapter 1120.
- (12) Impact attenuators are considered as terminals.
- (14) Includes crossroad bridge rail. See Chapter 710.
- (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
- (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
- (21) Analyses required. See 325.03(5) for details.
- (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
- (23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
- (25) For main line, use the Project Type row for Safety, Non-Interstate Freeway on Matrix 3 for NHS and on Matrix 5 for non-NHS.

Design Matrix 4:
Interchange Areas, NHS (Except Interstate) and Non-NHS
Figure 325-6

↕ Project Type		Bridges (11)											Intersections		Barriers									
Design Elements ⇄		Horiz. Align.	Vert. Align.	Lane Width	Shldr Width	Lane Transition	Median Width	Cross Slope Lane	Cross Slope Shldr	Fill/ Ditch Slopes	Access (3)	Clear Zone (18)	Sign. De., Illumin.	Basic Safety	Bike & Ped.	Lane Width	Shldr Width	Vertical Clear.	Structural Capacity	Turn Radii	Angle	I/S Sight Dist.	Term. & Trans. Section (12)	Bridge Rail Run (19)
Preservation																								
Roadway																								
	(5-1) HMA/PCOP													B	B	M			F			B	F	B
	(5-2) BST													B	B							B	F	B
	(5-3) BST Routes/Basic Safety													B	B	M			F				F	B
	(5-4) Replace HMA with PCOP at I/S			EUM	EUM		DEM	EUM						B	B								F	B
Structures																								
	(5-5) Bridge Replacement	M	F	M	M	F		M	M	M		F	F	F	F	F	F(2)	F(2)	F	F	M	M	F	F
	(5-6) Bridge Repl. (Multilane)	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)		F	F	F	F	M	F(2)	F(2)	F	F	F(2)	F	F	F
	(5-7) Bridge Deck Rehab												B	B	M								F(6)	F(22)
Improvements (16)																								
Mobility																								
	(5-8) Urban (Multilane)	F(2)	F(2)	F(2)	F(2)	F	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F(2)	F	F	EUM	EUM	F	F
	(5-9) Urban	M	M	M	M	F	M	M	M	M	F	F	F	F	F	M	M	M	F	F	EUM	EUM	F	F
	(5-10) Rural	M	M	M	M	F	M	M	M	M	F	F	F	F	F	M	M	M	F	F	EUM	EUM	F	F
	(5-11) HOV	M	M	M	M	F	M	M	M	M	F	F	F	F	F	M	M	M	F	F	EUM	EUM	F	F
	(5-12) Bike/Ped. Connectivity	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	F	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
Safety																								
	(5-13) Non-Interstate Freeway	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F(2)	F	F	F	F	F	F	F(2)	F(2)	F	F	F(2)	F(2)	F	F
	(5-14) Intersection (1)			M(4)	M(4)	F		M(4)	M(4)	M(4)	F	F	F	F	M		M(4)			M(4)	M(4)	F	F	F
	(5-15) Corridor (1)	M(4)	M(4)	M(4)	M(4)	F	M(4)	M(4)	M(4)	M(4)	F	F	F	F	M		M(4)	F		M(4)	M(4)	F	F	F
	(5-16) Median Barrier			DE/F	DE/F																	F(20)	F	F
	(5-17) Guardrail Upgrades					DE/F																F	F(23)	
	(5-18) Bridge Rail Upgrades																					F	F(22)	
	(5-19) Risk: Roadside									M(4)	EUM	F	F									F	F	F
	(5-20) Risk: Sight Distance	FM(21)	FM(21)	FM(21)	FM(21)	FM(21)	FM(21)	FM(21)	FM(21)	FM(21)	F(21)	F(21)	F	F	F	F	F(21)	F(21)	F(21)	FM(21)	FM(21)	F(21)	F	F
	(5-21) Risk: Roadway Width	FM(21)	FM(21)	FM(21)	FM(21)	F	FM(21)	FM(21)	FM(21)	FM(21)	F	F	F	F	F	F	F(21)	F(21)	F(21)	FM(21)	FM(21)	F(21)	F	F
	(5-22) Risk: Realignment	FM	F/M	F/M	F/M	F	F/M	F(2)	F(2)	FM	F	F	F	F	F		F(21)	F(21)	F(21)	FM(21)	FM(21)	F(21)	F	F
Economic Development																								
	(5-23) Freight & Goods (Frost Free) (8)	EUM	EUM	EUM	EUM	EUM	EUM	M	M	EUM	F	F	B	B	EUM/F(26)	DEM	DEM	F		EUM	EUM	EUM	F	B
	(5-24) Rest Areas (New)	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F		F	F	F	F	F
	(5-25) Bridge Restrictions	M	F	M	M	M	M	M	M	M				EUM/F(26)			M	F		M	M	F	F	F
	(5-26) Bike Routes (Shldr)			EUM	(7)	EUM		EUM	EUM	EUM			R	R	F	EUM	EUM					B	B	R

- ☐ Not Applicable
 F Full design level. See Chapter 440.
 M Modified design level. See Chapter 430.
 F/M Full for freeways/Modified for nonfreeway
 B Basic design level. See Chapter 410.
 DE Design Exception
 EU Evaluate Upgrade
- (1) Collision Reduction (HAL, HAC, PAL), or Collision Prevention (At Grade Removal, Signalization & Channelization). Specific deficiencies that created the project must be upgraded to design level as stated in the matrix.
 (2) Modified design level may apply based on a corridor or project analysis. See 325.03(5).
 (3) If designated as L/A acquired in the Access Control Tracking System, limited access requirements apply. If not, managed access applies. See 325.03(5).
 (4) Full design level may apply based on a corridor or project analysis. See 325.03(5).
 (5) For bike/pedestrian design see Chapters 1020 and 1025.
 (6) Applies only to bridge end terminals and transition sections.
 (7) 4 ft minimum shoulders.
 (8) If all weather structure can be achieved with spot ditches and overlay, modified design level applies to NHS highways and basic design level applies to non-NHS highways.
- (11) See Chapter 1120.
 (12) Impact attenuators are considered as terminals.
 (16) For design elements not in the matrix headings, apply full design level as found in the applicable chapters and see 325.03(2).
 (18) On managed access highways within the limits of incorporated cities and towns, City and County Design Standards apply to areas outside the curb or outside the paved shoulder where no curb exists.
 (19) The funding sources for bridge rail are a function of the length of the bridge. Consult programming personnel.
 (20) Applies to median elements only.
 (21) Analyses required. See 325.03(5) for details.
 (22) Upgrade barrier, if necessary, within 200 ft of the end of the bridge.
 (23) See description of Guardrail Upgrades Project Type, 325.03(1) regarding length of need.
 (26) Stewards ramps must be addressed for ADA compliance. See Chapter 1025.

Design Matrix 5:
Main Line Non-NHS Routes
Figure 325-7